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<b>(21) International Application Number:</b> PCT/EP99/04077 <b>(22) International Filing Date:</b> 14 June 1999 (14.06.99) <b>(30) Priority Data:</b> 09/143,664                      31 August 1998 (31.08.98)                      US <b>(71) Applicant (for all designated States except US):</b> SOCIETE DES PRODUITS NESTLE S.A. [CH/CH]; Case Postale 353, CH-1800 Vevey (CH). <b>(72) Inventors; and</b> <b>(75) Inventors/Applicants (for US only):</b> CHERIAN, George [IN/US]; 10105 Crescent Cove 801, Hebron Parkway, Lewisville, TX 75057 (US). JACOBSON, Mark, Randolph [US/US]; 27 Candlewood Springs, New Milford, CT 06776 (US). VADEHRA, Dharam, Vir [US/US]; 6 Halletts Road, New Milford, CT 06776 (US). <b>(74) Agent:</b> ELKINGTON AND FIFE; Prospect House, 8 Pembroke Road, Sevenoaks, Kent TN13 1XR (GB).		<b>(81) Designated States:</b> AT, AU, BG, BR, CA, CH, CN, CZ, DE, DK, ES, FI, GB, HU, ID, IL, IN, IS, JP, KE, KR, LK, LU, MG, MX, NO, NZ, PL, PT, RO, RU, SE, SG, SK, TR, UA, US, YU, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report.</i>
<b>(54) Title:</b> CREAM SUBSTITUTE CONTAINING BUTTER  <b>(57) Abstract</b>  A cream substitute comprising from 5 % to 40 % by weight of butter, from 0.05 % to 2 % by weight of a food acceptable acid, from 0.25 % to 5 % by weight of a thickening agent, and from 0.25 % to 4 % of a food protein, based on the total weight of the cream substitute, together with a sufficient amount of water to total 100 % by weight.		

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## CREAM SUBSTITUTE CONTAINING BUTTER

The present invention relates to a cream substitute, especially one which can be used in food products normally containing cream, to methods of making the cream substitute and to various foodstuffs prepared with the cream substitute in place of some or all of the cream such foodstuffs typically are prepared with.

10 Cream substitutes are known which may be added to other ingredients of food products normally containing cream such as culinary products, e.g., sauces, gravies, soups, etc. or cream-containing desserts, e.g., cream-filled pastries, etc. Some of these cream substitutes  
15 contain gelatin to provide texture and/or as a stabilizer but the use of gelatin is undesirable not only because of concerns about bovine spongiform encephalopathy (i.e., "BSE" or "mad-cow disease"), but also for the vegetarian population, as well as for certain ethnic groups who have  
20 concerns about the nature of meat used in certain food products and/or who observe certain dietary constraints concerning the consumption of meat and dairy products.

We have developed a cream substitute which does not  
25 contain gelatin, which is stable to heat, high acid (i.e.,  $\text{pH} \leq 5$ ) and alcohol (e.g., wine, liquor, etc.), which gives a high yield, and which has superior emulsifying properties when compared with known cream substitutes.

According to the present invention, there is provided a cream substitute comprising from about 5% to about 40% by weight of butter, from about 0.05% to about 2% by weight of a food acceptable acid, from about 0.25% to about 5% by weight of a thickening agent from about 0.25% to about 4% by weight of a food protein, based on the weight of the cream substitute, with water making up the remainder up to 100% by weight.

10 The amount of butter in the cream substitute of the invention is preferably from about 15% to about 35%, and more preferably from about 20% to about 30% by weight based on the weight of the cream substitute.

Any acid commonly acceptable in the food preparation field for use with food, i.e., referred to herein as a "food acceptable acid", may be used to reduce the pH and to impart microbiological stability as well as other functionalities, depending upon the acid chosen. For example, lactic acid, citric acid, malic acid, fumaric acid, tartaric acid or succinic acid or any mixture of such acids may be used. The amount of such acid included in the cream substitute may be from about 0.05% to about 2.0% by weight and preferably from about 0.05% to about 0.50% by weight based on the total weight of the cream substitute.

25 The thickening agent may be a suitable starch including modified and unmodified starches, depending upon the desired functionality of the material, e.g., its viscosity, heat resistance, shear resistance, the amount of retorting and the like it will undergo, or any gum

acceptable for use with food, i.e., referred to herein as a "food acceptable gum", e.g., xanthan gum, guar gum, gum arabic, carrageenan, gellan gum, locust bean gum, gum ghatti, gum tragacanth, agar, algin, sodium alginate, potassium alginate or propylene glycol alginate, or any mixture thereof. The amount of thickening agent may be from about 0.25% to about 5% by weight and preferably from about 1% to about 3% by weight based on the total weight of the cream substitute.

10       The protein component, which may include, but is not limited to soy, rice, pea and/or milk protein, is preferably a dairy protein such as whey protein concentrate or isolate, casein in its various forms, e.g., acid casein, rennet casein, or sodium, potassium or calcium caseinate. The amount of protein used may be varied according to the nature and concentration of the protein contained in the components of the cream substitute, as well as in the functionalities desired for the product during its initial processing and final use. 20       These proteins, and the useful amounts thereof, would be readily determinable by one of ordinary skill in the food art without the need for any undue experimentation. Preferably, the amount of protein used varies from about 0.25 to about 4 wt % and more preferably between about 25       0.25 and about 2 wt %.

      The cream substitute of the invention may be prepared by mixing the solid ingredients with water, e.g., at a temperature of from about 120°F to 200°F (49°C to 93°C), preferably with agitation. The butter is then added and 30       the pH is adjusted. The resulting mixture is preferably

homogenized by various means familiar to those of ordinary skill in the art, e.g., with a homogenizer, a colloid mill, etc.

The cream substitute may be refrigerated, frozen, 5 dehydrated, pasteurized or retorted and canned. The pasteurisation may be carried out by a high temperature/short time ("HTST") technique, which is well known to those of ordinary skill in this art, e.g., at 282°F (139°C) for 10 seconds. The cream substitute 10 normally has a viscosity that enables it to be spoonable at room temperature.

The cream substitute of the invention may be used in food products normally containing cream and/or butter or margarine as well as a fat or oil in an emulsified form, 15 such as culinary products, e.g., sauce, gravy or soup, in desserts, e.g., cream-filled pastry, in drinks, as a component of salad dressings, particularly the so-called "creamy dressings", as well as fillings in pies, crepes and "pockets". These products are collectively referred 20 to herein as "foodstuffs".

The present invention therefore is also directed to a "foodstuff" comprising a cream substitute of the present invention. The cream substitute of the present invention may replace some or preferably all of the cream that is 25 normally present in such a foodstuff.

The amount of cream substitute present in the foodstuff may be from 1% to 80% by weight, preferably from 5% to 45% by weight and more preferably from 10% to 40% by weight based on the weight of the foodstuff.

The cream substitute of the present invention is stable in the presence of acids and alcohol, e.g., some products contain lemon juice or wine. It is also heat stable, that is, there is no evaporation on boiling and a skin or film does not readily form on the surface of the food product. In addition, the cream substitute of the present invention is an excellent emulsifier, e.g. it is capable of emulsifying three times its own weight in butter and it does not destabilize when moisture is released by frozen or fresh foods during baking, broiling, etc.

#### EXAMPLES

The following Examples further illustrate the present invention but are not to be construed as limiting the invention in any manner. The percentages given are by weight unless otherwise noted.

##### Example 1

A cream substitute according to the invention is prepared by blending the following ingredients in the manner described below:

20	butter	24%
	citric acid	0.1%
	xanthan gum	0.5%
25	guar gum	0.2%
	potassium sorbate (an antimicrobial agent)	0.2%
	whey protein concentrate (80% protein)	1.0%
30	sodium caseinate	0.75%
	water	balance to 100%

To prepare the cream substitute, the gum component and the protein component are mixed for five (5) minutes in water at approximately 150°F, followed by the addition of the potassium sorbate and the citric acid. The mixture  
5 is then stirred for three (3) minutes, after which the butter is added and allowed to melt, followed by mixing for seven (7) additional minutes. The mixture is then homogenized in a two stage homogenizer (2,000/500 psi) and pasteurized at 185°F for 30 seconds. The product is  
10 thereafter cooled to 40°F and packaged.

When used at room temperature, the cream substitute is spoonable, stable to acid and heat and has excellent emulsifying properties which are superior to cream substitutes containing gelatin.

15

#### Example 2

Another cream substitute according to the invention is prepared by blending the following ingredients in the manner described in Example 1:

20	butter	25%
	potassium sorbate	0.2%
	citric acid	0.1%
	xanthan gum	0.7%
	guar gum	0.25%
25	whey protein concentrate (80% protein)	0.6%
	diglyceride of tartrate (emulsifier)	0.3%
	water	balance to 100%

30 The cream substitute produced according to Example 2 has properties identical to those of Example 1.



Example 3

Still another cream substitute according to the invention is formed by blending the following ingredients in the manner described in Example 1:

5	butter	25%
	potassium sorbate	0.2%
	citric acid	0.1%
	xanthan gum	0.7%
10	guar gum	0.3%
	rennet casein	0.8%
	water	balance to 100%

The cream substitute according to the example had properties in keeping with those described for the substitutes prepared according to Examples 1 and 2.

Example 4

This example illustrates a food product, i.e., Fiesta Alfredo Sauce, containing the cream substitute described in Example 1:

20	vegetable oil	1/2 cup
	chopped garlic	2 tablespoons
	green onion	1 cup
	sliced white mushroom	1 1/4 cup
25	sliced oyster mushroom	1 1/4 cup
	spinach	1 1/2 cup
	white wine	1/2 cup
	basil	2 tablespoons
	diced tomato	3 cups
30	cream substitute of Example 1	5 pounds

parmesan cheese	1¼ cup
chicken base (concentrate)	2 tablespoons

The ingredients are blended in the order given to provide a sauce which can be served over pasta, rice, meat or seafood.

5

**CLAIMS:**

1. A cream substitute comprising from about 5% to about 40% by weight of butter, from about 0.05% to about 2% by weight of a food acceptable acid, from about 0.25% to about 5% by weight of a thickening agent, and from about 0.25% to about 4% by weight of a food protein based on the total weight of the cream substitute, together with a sufficient amount of water to total 100% by weight.

10

2. The cream substitute according to claim 1 wherein the butter is present in an amount of from about 15% to about 35% by weight, based on the total weight of the cream substitute.

15

3. The cream substitute according to claim 1 or claim 2 wherein the food acceptable acid is selected from lactic acid, citric acid, malic acid, fumaric acid, tartaric acid, succinic acid or mixtures thereof.

20

4. The cream substitute according to any of claims 1 to 3 wherein said food acceptable acid is present in an amount of from about 0.05% to about 1.5% by weight based on the total weight of the cream substitute.

25

5. The cream substitute according to any of claims 1 to 4 wherein the thickening agent is a starch or any food acceptable gum.

6. The cream substitute according to claim 5 wherein the food acceptable gum is selected from xanthan gum, guar gum, gum arabic, carrageenan, gellan gum, locust bean gum, gum ghatti, gum tragacanth, agar, algin, sodium alginate, potassium alginate, propylene glycol alginate or mixtures thereof.

7. The cream substitute according to any of claims 1 to 6 wherein the thickening agent is present in an amount of from about 0.25% to 4% by weight based on the total weight of the cream substitute.

8. The cream substitute according to any of claims 1 to 7 wherein said food protein is selected from soy, rice, pea or milk protein.

9. The cream substitute according to any of claims 1 to 8 wherein said food protein is a dairy protein.

10. The cream substitute according to claim 9 wherein said dairy protein is selected from whey protein concentrate, whey protein isolate or casein.

11. The cream substitute according to any of claims 1 to 10 wherein the food protein is present in an amount of from about 0.25%-2% by weight.

12. A process of preparing a cream substitute according to any of claims 1 to 11 which comprises melting the butter, the food acceptable acid, the thickening agent

and the protein to form a mixture and then blending said mixture with water.

13. The process according to claim 12 which further  
5 comprises agitating the mixture during said blending step.

14. The process according to claim 12 or claim 13 wherein the cream substitute is refrigerated, frozen, dehydrated, pasteurized or restored and canned.

10

15. A foodstuff comprising the cream substitute according to any of claims 1 to 11.

16. The foodstuff according to claim 15 wherein the  
15 amount of cream substitute present therein ranges from about 1% to about 80% by weight based on the weight of the foodstuff.

# INTERNATIONAL SEARCH REPORT

International Application No

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**A. CLASSIFICATION OF SUBJECT MATTER**  
IPC 7 A23L1/19

According to International Patent Classification (IPC) or to both national classification and IPC

**B. FIELDS SEARCHED**

Minimum documentation searched (classification system followed by classification symbols)

IPC 7 A23L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	GB 1 066 703 A (QUALITY FOODS LIMITED) 26 April 1967 (1967-04-26) example 4 ---	1-16
Y	EP 0 714 609 A (ASAHI FOODS CO LTD) 5 June 1996 (1996-06-05) page 3, line 19 - line 28; examples 1,3 page 6, line 15 - line 21 ---	1-16
Y	GB 1 077 338 A (GENERAL FOODS CORPORATION) 26 July 1967 (1967-07-26) column 2 -column 3 -----	1-16

☐ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International Application No

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